



Department of Biomedical Engineering

# Graduate Student Handbook

Academic Year 2022 – 2023

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## Introduction

### 1.1 General Information & Points of Contact

The purpose of this document is to outline the policies, procedures and milestones for the MSBME and PhD degrees in Biomedical Engineering. This document should be used by students in the BME Graduate Program for guidance in their graduate studies, and by advisors in advising students on the various required milestones in each of the degree programs.

Biomedical Engineering is a joint department in the UAB Schools of Engineering and Medicine. Faculty within the department and throughout the Medical Center and other parts of the university participate in the BME graduate program. Many research areas are represented within the program. BME graduate students take a set of core courses with the remainder of their coursework selected for relevance to their research area and career goals. Each graduate student's individual degree plan is developed collaboratively by the student, research advisor, and the BME graduate program director.

**Dr. Prasanna Krishnamurthy** (Associate Professor & Graduate Program Director, Volker Hall G094M, (205) 934-6691, [prasanak@uab.edu](mailto:prasanak@uab.edu)) works with the Graduate Program Committee and the UAB Graduate School to develop and administer the graduate programs and policies of the BME Department. Dr. Krishnamurthy will sign forms, approve Degree Plans, and provide other assistance as students reach the milestones toward their degree.

**Mrs. Julie Calma** (Graduate Program Manager, Volker Hall, Hoehn 361 (205) 996-0165, [jcalma@uab.edu](mailto:jcalma@uab.edu)) provides administrative support for the BME Graduate Program. She is the primary contact for all questions related to the BME Graduate Program. All required BME Program documentation and forms must be submitted to the BME Graduate Program Manager.

### 1.2 Important Sources of Information

This Handbook supplements the UAB Graduate Catalog and the UAB Graduate School website, which presents policies for all graduate students at UAB.

#### **UAB Graduate Catalog**

<http://catalog.uab.edu/graduate/schoolofengineering/biomedical/>

#### **UAB Graduate School Academic Policies & Progress:**

<https://www.uab.edu/graduate/students/current-students>

#### **Other important sources of information:**

- BME Graduate Program website  
<http://www.uab.edu/engineering/bme/graduate>
- BME Graduate Program Handbook & other program documents  
<http://www.uab.edu/engineering/bme/graduate/documents>
- BlazerNET  
<https://www.uab.edu/blazernet>

- Graduate School Forms  
<https://www.uab.edu/graduate/students/current-students/academic-policies-progress/forms>
- UAB Thesis and Dissertation website  
<https://www.uab.edu/graduate/students/current-students/theses-dissertations/your-thesis-and-dissertation>
- UAB Graduate Faculty Listing  
<https://www.uab.edu/graduate/faculty-staff/graduate-faculty/graduate-faculty-listing>
- NIH Individual Predoctoral Fellowships  
<https://researchtraining.nih.gov/programs/fellowships/F31>
- UAB Student Health Services  
<http://www.uab.edu/studenthealth/>
- UAB Responsible Conduct of Research (RCR) training  
<https://www.uab.edu/research/home/uab-rcr-training>
- UAB Environmental Health and Safety  
<https://www.uab.edu/ehs/about-ehs>
- UAB Institutional Animal Care and Use Committee (IACUC)  
<https://www.uab.edu/research/home/iacuc>
- UAB Institutional Review Board (IRB)  
<https://www.uab.edu/research/home/irb>
- UAB Graduate Academic Ethics and Misconduct Policy  
<http://catalog.uab.edu/graduate/academicprogress/#academicethicsandmisconducttext>

## 2 Master of Science in Biomedical Engineering (MSBME) Program

The BME Graduate Program offers Plan I (thesis-based) and Plan II (course-based) Master's degrees.

### 2.1 Requirements for the MSBME Plan I (thesis-based) Degree

The Plan I (thesis-based) Master's degree requires completion, in good academic standing, of at least 30 semester hours of appropriate graduate work, submission of a written thesis embodying the results of the student's original research, and public presentation and defense of the thesis.

Please consult the current [UAB Graduate Catalog](#) for details on courses. Elective courses are selected by the student in consultation with their research advisor. Electives and any course substitutions must be listed on a Degree Plan ([see section 2.2.2](#)) and approved by the Graduate Program Director.

Please note that 30 hours is a minimum requirement and that many students complete more hours than this minimum while earning the MSBME degree.

Plan I MSBME students must complete Responsible Conduct of Research (RCR) training. For MS students, this includes an online training component and a two-hour in-person workshop. Please see the UAB RCR web site (<https://www.uab.edu/cas/biology/graduate-resources/rcr-training>) for information on the online component. The in-person component is integrated with BME 670, which all MS students must take. RCR training must be completed before admission to candidacy.

The Graduate School requires that a student must be admitted to candidacy before they can register for BME 699 Thesis Research. This means students cannot register for BME 699 and accrue the required number of thesis research hours until they have completed their research proposal presentation ([see section 2.2.5](#)). For the MS degree, admission to candidacy must take place at least one semester before graduation. Candidacy deadlines are listed on the Graduate School website (<https://www.uab.edu/graduate/>)

## 2.2 MSBME Plan I Milestones

### 2.2.1 Select Research Advisor and Project

Students should identify a research advisor and project as soon as possible, ideally by the end of the first semester. It is a student's responsibility to choose a research advisor. This person must agree to accept the student. To help in identifying a research advisor, students may take BME 673 Lab Rotation in their first semester. This course will count as an elective, but not as a BME or Life Science elective. See the [Graduate Catalog](#) for a description of BME 673. All students must complete an advisor selection form. To obtain this form please go to the [BME Graduate Program Documents website](#). This form should be completed by the student and research advisor, and returned to BME Graduate Program Manager for completion.

### 2.2.2 Formulate Degree Plan

The research advisor will help the student identify their thesis project and formulate a Degree Plan. The Degree Plan lists all core and elective courses the student is expected to take for the degree. A Degree Plan form can be downloaded from the [BME Graduate Program Documents website](#). The BME Graduate Program Director must approve the Degree Plan. The student should keep a copy of their Degree Plan and use it as a guide for registering for courses. Changes in the Degree Plan will be made in consultation with the student's research advisor and program director, or in some cases with the student's thesis committee. The preliminary Degree Plan must be completed as soon as the student has a research advisor. Changes to the Degree Plan must be approved by the BME Graduate Program Director.

### 2.2.3 Select Thesis Committee

The thesis committee is normally selected by the end of the second semester. Fill out a Graduate Study Committee Letter downloaded from the [Graduate School Forms website](#) and submit it for approval to the BME Graduate Program Manager. The Program Manager will submit the form to the UAB Graduate School for final approval. If there is ever a change in

the thesis committee, a change of graduate study committee form must be filled out and turned in to the BME Graduate Program Administrator.

The thesis committee is required to have a minimum of three persons, including the research advisor, a minimum of one committee member with a primary appointment in BME, and one committee member with an appointment outside of BME. The research advisor can help in selecting committee members. It is up to the student to contact each faculty member selected to serve on a thesis committee and explain to them the nature of the proposed research. Faculty members are not required to serve on thesis committees, but most will agree if they are not already over committed. Each committee member should be able to bring some relevant expertise to guide the student's research.

All committee members should be appointed to the [UAB Graduate Faculty](#). If a faculty member is not already on the Graduate Faculty, they may be nominated. The BME Graduate Program Administrator can assist with this process.

#### 2.2.4 MSBME Progress Reviews & Committee Meetings

Students should meet with their thesis committee at least every six months to review progress. Typically, a student meets informally with the committee during the first spring semester, has a progress report meeting with the committee in the summer or fall semester, proposes in the fall/spring semester of the second year, and defends the following spring/summer semester. The BME Graduate Program Administrator must be notified of all committee meetings. All committee members must complete a BME Graduate Student Committee Meeting Evaluation Form downloaded from the [BME Graduate Program Documents website](#), which should be turned in to the BME Graduate Program Administrator after the meeting.

At the end of each semester, the Graduate Program Administrator will distribute a progress report document to each graduate student which they will use to document committee meetings, publications, presentations, defenses, and other academic milestones. The updated document must be returned to the Graduate Program Administrator. The Graduate Program Administrator will also communicate with each student's research advisor for affirmation that the student is making satisfactory progress. Students will not receive their Registration Access Code for the following semester until both responses have been received.

#### 2.2.5 Thesis Proposal and Admission to Candidacy

The thesis proposal lays out a plan for completing the thesis. The student should present it as soon as they and their research advisor feel it is sufficiently developed. The proposal must be approved by the thesis committee at least one semester before graduation. This is typically in the third semester.

The written thesis proposal should follow the basic features of the [NIH NRSA predoctoral fellowship application](#). It should include a title page, an abstract, hypotheses and specific aims, a comprehensive literature survey, a significance section, data from preliminary studies, description of experimental design and methodologies, a discussion of potential problems anticipated and their solution, a timeline, and a list of references.

No later than 2 weeks prior to the proposal defense date, the student must:

- Send a draft of the [written thesis proposal](#) to the committee members.
- Send the BME Graduate Program Administrator the proposal title, abstract, a list of committee members (indicating the committee chair), defense date, time and location so that the appropriate announcements can be distributed

Faculty members can be very busy, particularly near the end of a term. Therefore, the student should start scheduling the defense meeting early, several weeks prior to the planned defense date. Also, be advised that it is often harder to schedule meetings in the summer.

The student's advisor will give details about what is expected of the student during the thesis proposal presentation. Other students and faculty members are allowed to be present for the public portion of the proposal presentation.

The student must download the BME MS Proposal Evaluation Form from the [BME Graduate Program Documents website](#) and pass it out to those in attendance at the proposal. After the proposal defense, a member of the committee will collect the forms and turn them in to the BME Graduate Program Administrator.

In the event that a student fails to meet the standards set by the thesis committee for the written and/or oral portion of the proposal defence, then the student will have one additional opportunity to pass that portion of the exam. If the committee determines that the student did not pass a second time, the student is dismissed from BME.

After the thesis committee has approved the proposal, the student must:

- Fill out the Admission to Candidacy Form from the [Graduate School Forms website](#) and have it signed by the thesis advisor. Note the additional Research Compliance Verification Form needed if the research involves humans or animals.
- Email the signed admission to candidacy form, along with a PDF file of the thesis proposal, to the BME Graduate Program Administrator at least 5 business days before the Graduate School deadline for submission of the Admission to Candidacy Form. The deadlines for Admission to Candidacy can be found on the [Graduate School's website](#). The Graduate Program Administrator will submit the Admission to Candidacy Form to the BME Program Director and the Graduate School for approval. After that, the student is admitted to candidacy.

### 2.2.6 Thesis Preparation

The thesis must be prepared and formatted according to the UAB Graduate School's instructions described on the [UAB Graduate School Thesis and Dissertations website](#). The thesis is expected to be of high-quality, excel technically and meet high standards for structure, grammar, and writing style. A typical thesis contains a title page, an abstract, an introduction with comprehensive literature review, objective, hypotheses, methods, results, discussion, future work, conclusion, and a complete bibliography.

The thesis is presumed to be the original research work of the student. If previously published material is used in the thesis, written permission to use the material must be obtained from the copyright holder (for more information, see the [Theses and Dissertations Resources page](#)). Students who have manuscript(s) published, accepted or submitted for publication can organize



their thesis in the Preprint/Reprint style (for more information, see the [Theses and Dissertations Resources page](#)). The thesis will be submitted to ProQuest for review of originality.

### 2.2.7 Thesis Defense

At the beginning of the student's final semester, they will need to complete an Application for Degree form from the [Graduate School Forms website](#) and turn it in to the Graduate School.

After the student has completed their thesis research, they will present the results to the thesis committee at the thesis defense, which will be open to the public. Students should attend a few of these events before their own defense.

The date of the defense must comply with Graduate School deadlines.

No later than 2 weeks prior to the thesis defense date, the student must:

- Send their thesis to their committee members
- Send the BME Graduate Program Administrator their thesis title, abstract, a list of committee members (indicating the committee chair), and the date, time and location of the defense so that the appropriate announcements can be distributed
- Submit the Approval Form Request from the [Graduate School Forms website](#)

Students should start scheduling their defense meeting early, several weeks prior to the planned defense date. Also, be advised that it is often harder to schedule meetings in the summer.

Committee members are encouraged to read the student's thesis within one week of receiving the manuscript. If there are significant problems with the document, the student, in consultation with their research advisor, may elect to re-schedule the defense.

After the thesis presentation, the committee and the attending public can ask the student questions. The student is expected to be able to field these questions in a professional and efficient manner. The non-committee members are then asked to leave the room and the thesis committee will ask additional questions and then decide whether the student has passed the thesis defense. If the committee does not have unanimous consensus to pass, the remediation policy outlined in the [Graduate Catalog](#) will be adhered to.

Committee members and others who attend the master's defense will complete the BME Master's Thesis Defense Evaluation Form. The student must download the form from the [BME Graduate Program Documents website](#) and bring copies to the defense. After the defense, the research advisor will collect the forms and deliver them to the BME Graduate Program Administrator. The results of this evaluation are used by the BME Graduate Program to assess whether we are meeting Program Goals as required by the Southern Association of Colleges and Schools (SACS) to maintain program accreditation. The results of this evaluation are not used to determine whether the student passed the master's thesis defense.

All students must schedule their thesis final examination in accordance with Graduate School policies.

### 2.2.8 Submission of Thesis

One week (5 business days) before thesis submission to the Graduate School (see below), the student should send by e-mail the following information to the BME Graduate Program Manager for review and approval:

- the date of the public defense
- the final version of the thesis in a PDF file
- the Thesis Approval Form signed by each committee member
- the student's CV, which includes all publications and conference presentations

No later than two weeks (10 business days) following the public defense, the final version of the thesis must be submitted to the Graduate School online as a single PDF file. In addition, submit the Thesis Approval Form signed by each committee member and the Program Director, and the UAB Publication Agreement form (online). Follow the Graduate School requirements on thesis submission found on the UAB Thesis and Dissertation website. Read and complete the [Theses and Dissertations Submission Checklist](#).

An extension can be requested from the Graduate School if the defense was held well before the semester deadline for final defense and if the thesis committee feels additional time is needed to complete the thesis. Extensions cannot be granted past the semester submission deadline (10 business days after the final defense deadline).

### 2.2.9 Petition for Admission into the PhD Program

Following completion of a Plan I Master's degree, students can petition for entry to the PhD Program. The student needs to submit the following to the BME Graduate Program Manager:

- An endorsement letter signed by all members of student's Thesis Committee
- The student's CV

It is not required to re-apply to the Graduate School. In most cases, the student will continue working with their MS research advisor; however, admission to the PhD program does not guarantee a specific research project or funding.

## 2.3 Requirements for the MSBME Plan II (course-based) Degree

Most MSBME students choose Plan I; however, a Plan II (course-based) Master's degree is also available. This program requires completion of at least 33 semester hours of graduate-level work including 27 semester hours of course work and 6 hours of non-thesis research. It also requires completion of a research project and submission of a written project report approved by the student's research advisor. Submission of the project report to the Graduate School is not required.

Please consult the current [UAB Graduate Catalog](#) for details on courses. Elective courses are selected by the student in consultation with their research advisor. Electives and any course substitutions must be listed on a Degree Plan ([see section 2.2.2](#)) and approved by the Graduate Program Director.

The student should select a research advisor and project in their first semester. An advisor selection form must be submitted to the BME Graduate Program Manager.

In the last semester before graduation, the student should submit an Application for Degree before the Graduate School's deadline.

The student must submit a written report on their research project to their research advisor. The scope of the project must be commensurate with 6 credit hours (two typical classes). The project report must be signed by the research advisor signifying approval. The final signed project report must be submitted to the Graduate Program Director and Graduate Program Manager by the last day of classes in the semester in which the student is graduating.

Plan II MS students may not petition to join the PhD program. If they wish to continue to a PhD, they must apply de novo to the Graduate School.

### 3 Doctor of Philosophy (PhD) Program

Requirements for the PhD Program differ depending on whether the student enters with a BS or MS degree.

#### 3.1 Requirements for the PhD Program after a BS Degree

Students can be admitted to the PhD Program with a BS degree in a field of biomedical engineering or closely-related discipline. Students with undergraduate degrees in the physical sciences, life sciences, or mathematics can also be considered for admission.

Students entering the PhD program with a BS are required to complete at least 72 semester hours of graduate work. Please consult the current [UAB Graduate Catalog](#) for details on courses. Elective courses are selected by the student in consultation with their research advisor. Electives and any course substitutions must be listed on a Degree Plan ([see section 3.4.2](#)) and approved by the Graduate Program Director.

Please note that 72 hours is a minimum requirement and most students complete more hours than this minimum while earning the PhD degree.

BME doctoral students are required to produce two original peer-reviewed research articles. Please consult the Graduate Catalog for details.

#### 3.2 Requirements for the PhD Program after a MS Degree

Students can be admitted to the PhD Program following completion of the MS Degree in Biomedical Engineering or a closely related field.

Students entering the PhD program with a MS degree are required to complete at least 51 semester hours of graduate work beyond the Master's degree. Please consult the current [UAB Graduate Catalog](#) for details on courses. Elective courses are selected by the student in consultation with their research advisor. Electives and any course substitutions must be listed on a Degree Plan ([see section 3.4.2](#)) and approved by the Graduate Program Director.

Please note that 51 hours is a minimum requirement and most students complete more hours than this minimum while earning the PhD degree.

BME doctoral students are required to produce two original peer-reviewed research articles. Please consult the Graduate Catalog for details.

### 3.3 MD/PhD and DMD/PhD students

Students enrolled in UAB's MSTP and DMD/PhD programs may complete the PhD portion of their training in the BME department. These students will follow the requirements for students entering the PhD program with a MS degree ([Section 3.2](#)).

### 3.4 PhD Milestones

#### 3.4.1 Select Research Advisor and Project

Students should identify a research advisor and project as soon as possible, ideally by the end of the first semester. It is a student's responsibility to choose a research advisor. This person must agree to accept the student. To help in identifying research advisors, doctoral students are required to take BME 773 Lab Rotation in their first semester. See the [Graduate Catalog](#) for a description of BME 773. The Graduate Program will waive this requirement for students who select a mentor and get mentor forms approved prior to the add/drop date for the first semester. Those students will instead be required to take an extra elective.

All students must complete an advisor selection form. To obtain this form please go to the [BME Graduate Program Documents website](#). This form should be completed by the student and research advisor, and returned to the BME Graduate Program Manager, who will review it and obtain the Program Director's approval and signature.

#### 3.4.2 Formulate Degree Plan

The research advisor will help identify the dissertation project and formulate a Degree Plan. The Degree Plan lists all core and elective courses the student is expected to take for the degree. A Degree Plan can be downloaded from the [BME Graduate Program Documents website](#). The BME Graduate Program Director must approve the Degree Plan. Students should keep a copy of the Degree Plan and use it as a guide for registering for courses. Changes in the Degree Plan will be made in consultation with the student's Research Advisor and Program Director, or in some cases with the student's Dissertation Committee. The Degree Plan must be completed as soon as the student has a research advisor. Changes to the Degree Plan must be approved by the BME Graduate Program Director.

#### 3.4.3 Select Dissertation Committee

The dissertation Committee should be selected by the end of the second semester. Fill out a Graduate Study Committee Letter downloaded from the [Graduate School Forms website](#) and submit it for approval to the BME Graduate Program Manager. The Program Manager will submit the form to the UAB Graduate School for final approval. If there is ever a change in the dissertation committee, a Change of Graduate Study Committee form must be filled out and turned in to the BME Graduate Program Manager.

The dissertation committee is required to have a minimum of five persons, including the research advisor, a minimum of one committee member with a primary appointment in BME, and two committee members with an appointment outside of BME. An external reviewer or dissertation committee member outside UAB is also recommended. The research advisor can

help in selecting committee members. It is up to the student to contact each faculty member selected to serve on the dissertation committee and explain to them the nature of the proposed research. Faculty members are not required to serve on dissertation committees, but most will agree if they are not already over committed. Each committee member should be able to bring some relevant expertise to guide the student's research.

All committee members should be appointed to the [UAB Graduate Faculty](#). If a faculty member is not already on the Graduate Faculty, they may be nominated. The BME Graduate Program Manager can assist with this process.

#### 3.4.4 PhD Progress Reviews & Committee Meetings

There should be an initial dissertation committee meeting shortly after its formation. Thereafter, PhD students should meet with their dissertation committee at least once a year. These meetings may be in the form of a progress update, proposal, or defense. The purpose of these meetings is to ensure satisfactory progress toward the student's degree via timely communication among the student and members of the committee. The BME Graduate Program Manager must be notified of all committee meetings. All committee members must complete a BME Graduate Student Committee Meeting Evaluation Form downloaded from the [BME Graduate Program Documents website](#), which should be turned in to the BME Graduate Program Manager after the meeting.

At the end of each semester, the Graduate Program Manager will distribute a progress report document to each graduate student which they will use to document committee meetings, publications, presentations, defenses, and other academic milestones. The updated document must be returned to the Graduate Program Manager. Students will not receive their Registration Access Code for the following semester until this is complete.

#### 3.4.5 Dissertation Proposal and Admission to Candidacy

The dissertation proposal lays out a plan for completing the dissertation. The student should present it as soon as they and their research advisor feel it is sufficiently developed. The proposal defense is a very important step in the student's pursuit of the doctorate. By approving the proposal and its oral defense, the dissertation committee indicates its confidence that the research project has appropriate scope and content for a dissertation and that the student is capable of completing the proposed research project. Changes to the project after the proposal defense are not unusual, but must be approved by the committee. After successfully defending their proposal, the student is admitted to candidacy.

The Graduate School requires students to be in candidacy for at least *two* semesters before graduation. Thus, students should not delay taking this step.

The proposal defense consists of the submission of a written research proposal and an oral defense of the proposal.

The written dissertation proposal should follow the basic features of the [NIH NRSA predoctoral fellowship](#) application. It should include a title page, abstract, hypotheses and specific aims (or

goals and objectives), a comprehensive literature survey, a significance section, data from preliminary studies, description of experimental design and methodologies, a discussion of potential problems anticipated and their solution, a timeline, and a list of references.

No later than two weeks prior to the oral defense date, the student must:

- Send a draft of the written dissertation proposal to the committee members
- Provide the BME Graduate Program Manager the proposal title and abstract, a list of committee members (indicating the committee chair), defense date, time and location so that the appropriate announcements can be distributed

Faculty members can be very busy, particularly near the end of a term. Therefore, the student should start scheduling the defense meeting early, several weeks prior to the planned defense date. Also, be advised that it is often harder to schedule meetings in the summer.

During the oral examination, the committee will examine the proposal and the student's background for conducting the proposed studies. The oral defense of the proposal is open to the public.

Students must download the BME PhD Proposal Evaluation Form from the [BME Graduate Program Documents website](#) and pass it out to those in attendance at the proposal. After the proposal defense, a member of the committee will collect the forms and turn them in to the BME Graduate Program Manager.

After the student has completed the oral phase of the examination, the committee will meet in a closed session, ask the student additional questions, and then decide the outcome of the comprehensive examination. Three outcomes are possible: 1) unconditional pass; 2) conditional pass (meaning the student must meet other conditions agreed upon by the committee such as passing specified courses, rewriting portions of the proposal, re-defending the proposal, or re-examination on selected areas); or 3) fail.

In the event that a student fails to meet the standards set by the thesis committee for the written and/or oral portion of the exam, then the student will have one additional opportunity to pass that portion of the Qualifying Exam/Proposal Defense. If the committee determines that the student did not pass the exam a second time, the student is dismissed from BME.

After successfully defending their proposal, the student should:

- Fill out the Admission to Candidacy Form from the [Graduate School Forms website](#) and have it signed by members of the dissertation committee. Note the additional Research Compliance Verification Form needed if the research involves humans or animals.
- Email the signed Admission to Candidacy Form, along with a PDF file of the thesis proposal, to the BME Graduate Program Manager at least 5 business days before the Graduate School deadline for submission of the Admission to Candidacy Form. The deadlines for Admission to Candidacy can be found on the [Graduate School site](#). The Graduate Program Manager will submit the Admission to Candidacy Form to the BME Program Director and the Graduate School for approval. After that, the student is admitted to candidacy.

#### 3.4.6 PhD Seminar Presentation Requirement

All PhD students are required to present their research progress in a BME Department Seminar. This seminar will typically occur within one or two semesters before graduation. Students must contact the BME Graduate Program Manager to schedule their seminar presentation at the beginning of the semester prior to the semester in which they want to make their presentation to ensure that the seminar schedule is not filled.

The BME seminar is attended by faculty, students (graduate and undergraduate), clinicians, practicing professionals, and others from the UAB community. As part of the overall assessment of the BME Doctoral Program required by the Southern Association of Colleges and Schools (SACS) to maintain program accreditation, committee members and others who attend the seminar presentation will complete the BME PhD Seminar Evaluation Form. The student should download the form from the [BME Graduate Program Documents website](#) and bring copies to the seminar presentation. After the presentation, the research advisor or another faculty member will collect the forms and deliver them to the BME Graduate Program Manager.

#### 3.4.7 Dissertation Preparation

The dissertation must be prepared and formatted according to the UAB Graduate School's instructions described on the [UAB Graduate School Thesis and Dissertations website](#). The dissertation is expected to be of high-quality, excel technically and meet high standards for structure, grammar, and writing style. A typical dissertation contains a title page, an abstract, an introduction with comprehensive literature review, objective, hypotheses, methods, results, discussion, future work, conclusion, and a complete bibliography.

The dissertation is presumed to be the original research work of the student. If previously published material is used in the dissertation, written permission to use the material must be obtained from the copyright holder (for more information, see the [Theses and Dissertations Resources page](#)). Students who have manuscripts published, accepted or submitted for publication can organize their dissertation in the Preprint/Reprint style (for more information, see the [Theses and Dissertations Resources page](#)). The thesis will be submitted to ProQuest for review of originality.

#### 3.4.8 Dissertation Defense

At the beginning of the student's final semester, they will need to complete an Application for Degree form from the [Graduate School Forms website](#) and turn it in to the Graduate School.

After the student has completed their dissertation research, they will present the results to the dissertation committee at the dissertation defense, which will be open to the public. Students should attend a few of these events before their own defense.

The date of the defense must comply with the Graduate School deadlines.

No later than 2 weeks prior to the dissertation defense date, the student must:

- Send their dissertation to their committee members

- Send the BME Graduate Program Manager the dissertation title, abstract, a list of committee members (indicating the committee chair), the date, time and location of the defense so that the appropriate announcements can be distributed
- Submit the Approval Form Request from the [Graduate School Forms website](#)

Faculty members can be very busy, particularly near the end of a term. Therefore, the student should start scheduling their defense meeting early, several weeks prior to the planned defense date. Also, be advised that it is often harder to schedule meetings in the summer.

Committee members are encouraged to read the student's dissertation well in advance of the defense. If there are significant problems with the document, the student, in consultation with their research advisor, may elect to re-schedule the defense.

After the dissertation presentation, the committee and the attending public can ask questions. The student is expected to be able to field these questions in a professional and efficient manner. The non-committee members are then asked to leave the room; The dissertation committee will ask additional questions and then decide whether or not the student passes the final examination, the defense of their work. If the committee does not have unanimous consensus to pass, the remediation policy outlined in the Graduate Catalog will be adhered to.

As part of the overall assessment of the BME PhD Program, committee members and others who attend the dissertation defense will complete the BME PhD Dissertation Defense Evaluation Form. The student should download the form from the [BME Graduate Program Documents website](#) and bring copies to their defense. After the defense, the research advisor will collect the forms and deliver them to the BME Graduate Program Manager. The results of this evaluation are used by the BME Graduate Program to assess whether we are meeting Program Goals as required by the Southern Association of Colleges and Schools (SACS) to maintain program accreditation. The results of this evaluation are not used to determine whether the student passed the dissertation defense.

#### 3.4.9 Submission of the Dissertation

One week (5 business days) before dissertation submission to the Graduate School, the student should send by e-mail the following information to the BME Graduate Program Manager for review and approval:

- the date of the public defense
- full references of the published or submitted original peer-reviewed journal articles on which the dissertation is based
- a reference to the BME seminar where dissertation research was presented
- the final version of the dissertation in a PDF file
- the Dissertation Approval Form signed by each committee member
- the student's CV, which includes all publications and conference presentations

No later than two weeks (10 business days) following the public defense, the final version of the dissertation must be submitted to the Graduate School online as a single PDF file. In addition, the student should submit the Dissertation Approval Form signed by each committee member



and the Program Director, the UAB Publication Agreement, the Survey of Earned Doctorates, and the Graduate School Exit Survey. The student should follow the Graduate School requirements on thesis submission found on the UAB Thesis and Dissertation website and read and complete the [Theses and Dissertations Submission Checklist](#).

An extension can be requested from the Graduate School if the defense was held well before the semester deadline for final defense and if the dissertation committee feels additional time is needed to complete the dissertation. Extensions cannot be granted past the semester submission deadline (10 business days after the final defense deadline).

## 4 Funding for MSBME and PhD Students

### 4.1 Funding Options for MSBME Students

The MSBME program is self-funded, meaning students receive no stipend from the department and are responsible for paying their own tuition and fees, which may be out-of-state. However, MSBME students have the following funding options available to them with the support of their thesis advisor or other faculty member.

- **Graduate Research Assistant (GRA):** This is for students doing funded research related to their thesis. MSBME students on a GRA receive a monthly stipend (minimum \$12,000), plus in-state tuition and fees, in exchange for work on a research project leading to their thesis.
- **Graduate Assistant (GA):** MSBME students can work as a GA for an hourly wage, but not for research related to their thesis. These students pay their own tuition, but it is at the in-state rate, even for out-of-state students.
- **Graduate Teaching Assistant (GTA):** Students can work as a teaching assistant for one or more courses. Please note, if this is an additional assignment, GRA & GA students cannot work more than 17.5 additional hours, and Trainees cannot work more than 10 additional hours.

### 4.2 Funding Options for PhD Students

The PhD program is a funded program, meaning students receive a stipend, tuition & fees. PhD students have the following funding options available to them with the support of a fellowship, their thesis advisor, or other faculty member.

- **Graduate Student Trainee (T):** For students doing funded research related to their dissertation. Trainees are funded either by a Blazer Fellowship, an institutional training grant, or an individual extramural funding source. PhD students with a Trainee assignment receive a monthly stipend (minimum \$29,000), plus in-state tuition and fees, in exchange for work on a research project leading to their dissertation.
- **Graduate Research Assistant (GRA):** For students doing funded research related to their thesis. PhD students with a GRA assignment receive a monthly stipend (minimum \$29,000), plus in-state tuition and fees, in exchange for work on a research project leading to their thesis.
- **Graduate Teaching Assistant (GTA):** Students can work as a teaching assistant for one or more courses. Please note, if this is an additional assignment, GRA students cannot work

more than 17.5 additional hours per week, and Trainees cannot work more than 10 additional hours per week.

## 5 Additional Policies & Guidelines

### 5.1 Courses Acceptable for BME Degree Plans

A list of pre-approved elective life sciences courses can be found at the [BME Graduate Program Documents website](#). Courses not on this list may be approved by the Graduate Program Director.

The course work for the MS and PhD degree must be at the graduate level (e.g. 500 level or above). UAB does not allow courses below the 500 level for either MS or PhD degrees. MS students should register for 600 level courses, and PhD students must register for 700 level courses. Except in unusual circumstances, all courses appearing on the Degree Plan must be taken for a letter grade.

A grade of 'C' or better must be earned in each course. Students must maintain a UAB graduate GPA of 3.2 to remain in good academic standing in the Biomedical Engineering Department.

### 5.2 UAB Graduate School Fellowship Incentive Program and Sources of Graduate Student Fellowships

The Graduate School has established a monetary incentive plan designed to encourage students to apply for individual fellowships funded by extramural agencies or foundations. [More information](#) is available from the Graduate School.

### 5.3 Laboratory Safety

All graduate students must attend the [School of Engineering Safety Seminar](#) every year. The seminar is held in the fall semester. Students will be notified about the time and location of the seminar via e-mail well in advance of the seminar. Many students will need additional training, which is available from the UAB [Environmental Health and Safety website](#). Students should work with their research advisors to determine which online training modules to complete. This training will depend on area of research and the type of research performed by others in the same lab space. Use of chemicals, animals, radioactive agents, biologics, human blood or organs and human subjects all require additional training. Further safety information and links to training are available at the UAB [Environmental Health and Safety website](#). The current BME safety coordinator can also answer questions and provide information on training.

### 5.4 Animal and Human Research Subjects

If the student's research involves use of animal subjects, approval from IACUC (Institutional Animal Care and Use Committee) must be obtained and kept current until the research is completed. The student must be listed on the IACUC protocol. Approval(s) must be submitted to the Graduate School for admission to candidacy and must also be included in the thesis or dissertation. For more information regarding IACUC requirements is available from [their website](#).

If the student's research involves human subjects, approval from the Institutional Review Board (IRB) must be obtained and kept current until the research is completed. The student's name must appear on all IRB Approval Forms. Approval(s) must be submitted to the Graduate School for

admission to candidacy and must also be included in the thesis or dissertation. For more information regarding IRB requirements, visit [IRB](#).

### 5.5 UAB OneCard & Keys

Your UAB OneCard is a valuable accessory at UAB, so carry it at all times. It guarantees free or reduced admission charges to special events, allows you to check out books from the UAB libraries, and is required for access to the Campus Recreation Center. You will be given instructions during orientation to get your UAB OneCard, keys, and key card access to buildings and labs.

Keys and key cards are issued to a particular person, so it is important for you to be responsible for any issued to you. The key card access system monitors and records all card transactions presented to the card readers on the UAB complex. Keys and key cards must be returned when you no longer need that particular key or key card access, or when you leave the university. Duplication is not allowed. If lost, you will be charged for replacement of lost keys and key cards.

### 5.6 Course Registration

To register for courses in [BlazerNET](#), students will receive a Registration Access Code (RAC) number from the BME Graduate Program Manager. The RAC number is sent to the student via e-mail. The student should follow the procedures for registration, and register for each term during the dates specified in the UAB Class Schedule. Instructions for registration can be found [here](#).

Students register for their research hours in the same way. If a research advisor is not listed for research hours, contact the BME Graduate Program Manager to add the advisor information to the registration system.

Please note – Registration Access Codes are subject to being withheld if any program forms have not been completed & returned in a timely manner.

### 5.7 Tuition Payments

Graduate Student Trainees will have their tuition and fees paid by the BME Graduate Program Manager prior to the beginning of the semester. Tuition remission for Graduate Research Assistants is automatically paid at the beginning of each semester. If any changes are made in a student's schedule after they have received notification that their tuition has been paid, they should contact the Manager to make sure there are no changes in the total tuition bill. Late payment of tuition and fees may result in the student being dropped from classes and/or charged late fees. BME will not be responsible for late fees if a student does not notify the BME staff of any changes in a timely manner.

### 5.8 Purchasing

The University has very specific procedures for purchasing and procurement, and is required to meet numerous state and federal standards. For that reason, there are procedures in place for

obtaining bids from vendors, entering into contracts, tracking equipment, surplus warehousing, transfer, and disposal of equipment, etc.

In most instances, students will request a purchase order to an approved vendor to secure supplies, equipment, etc. This process will usually be handled by the lab manager. Please note that students are not allowed to make lab supply purchases using personal funds and cannot be reimbursed! Those purchases should be made by a lab employee or the research advisor.

## 5.9 Travel Guidelines

- Travel reimbursements and International Travel Request Forms are now subject to extra scrutiny by UAB due to repeat offenses. Late submissions of these items run the risk of being denied.
- Travel reimbursement requests must be submitted to the Graduate Program Manager as soon as possible upon your return. BME has a departmental policy of requiring reimbursements to be processed within 30 days.
- Please submit travel reimbursements as a complete package.
- **ALCOHOLIC BEVERAGES & RELATED COSTS (INCLUDING TAX & TIP) CAN NEVER BE REIMBURSED BY UAB.** The traveler is responsible for excluding all alcohol costs from their reimbursement requests prior to submission. It is recommended that you request your server to put all alcohol costs on a separate receipt to make things easier for the person who processes your reimbursement.
- The final hotel bill is required, which shows it has been paid with a \$0.00 balance remaining.
- Please notify the Graduate Program Manager prior to traveling so they are aware & let them know if you have any questions about the documentation required for reimbursement.
- Make sure you have your mentor's permission prior to making any travel arrangements if they will be funding any costs, using the Student/Trainee Travel form, which can be downloaded on the [BME Graduate Program Documents website](#). If you receive funding from a training grant, make sure you follow sponsor guidelines & adhere to the budgeted amount for travel. Submit completed forms to the Graduate Program Manager.
- Original itemized receipts are required for all expenses.
- Conference registration fees & airline tickets can be paid directly by the Graduate Program Manager using a PO/Payment Request in advance of the trip. You will be responsible for all other travel expenses, which will be reimbursed after the trip.
- The only cost that can be reimbursed prior to traveling is an abstract submission fee. All other expenses must be reimbursed after the trip.
- You will be reimbursed for actual meal costs, not exceeding the maximum meal amount for employees (up to \$25.00 for breakfast, \$50.00 for lunch, and \$75.00 for dinner).

## 5.10 Vacation/Leave Policy

Per Graduate School policy, graduate research assistants and trainees are expected to be available in the periods between academic terms, and are not entitled to paid leave. Any form of leave must be coordinated between the student and the mentor and/or Graduate Program

Director. In emergencies, all students should inform their mentors or program director as soon as possible about the need for a leave of absence.

## 6 Recent Changes

### 6.1 Seminar Requirement

The program will now allow a maximum of 3 hours of BME seminar to be replaced with 3 hours from different seminar series. Any substitution must be approved by the BME graduate program director prior to registration.

### 6.2 Accelerated Bachelors/Masters Program (ABM)

BME is now participating in the Accelerated Bachelors/Masters (ABM) Program. More information can be found [here](#).